



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

8439 7590 10/14/2009  
ROBERT E. BUSHNELL & LAW FIRM  
2029 K STREET NW  
SUITE 600  
WASHINGTON, DC 20006-1004

EXAMINER	
TURNER, KATHERINE ANN	
ART UNIT	PAPER NUMBER
1795	
DATE MAILED: 10/14/2009	

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,854	03/04/2004	Su-Jin Han	P57016	5248

TITLE OF INVENTION: SECONDARY BATTERY HAVING AN ENLARGED ELECTROLYTIC SOLUTION INLET

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/14/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to:** Mail **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
 or Fax **(571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

8439 7590 10/14/2009  
**ROBERT E. BUSHNELL & LAW FIRM**  
**2029 K STREET NW**  
**SUITE 600**  
**WASHINGTON, DC 20006-1004**

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/791,854 03/04/2004

Su-Jin Han

P57016

5248

**TITLE OF INVENTION: SECONDARY BATTERY HAVING AN ENLARGED ELECTROLYTIC SOLUTION INLET**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/14/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
TURNER, KATHERINE ANN	1795	429-122000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_  
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_  
 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,854	03/04/2004	Su-Jin Han	P57016	5248
8439	7590	10/14/2009	EXAMINER	
ROBERT E. BUSHNELL & LAW FIRM 2029 K STREET NW SUITE 600 WASHINGTON, DC 20006-1004			TURNER, KATHERINE ANN	
			ART UNIT	PAPER NUMBER
			1795	
			DATE MAILED: 10/14/2009	

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 974 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 974 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability****Application No.**

10/791,854

**Applicant(s)**

HAN ET AL.

**Examiner**

Katherine Turner

**Art Unit**

1795

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to June 8, 2009.
2. ☒ The allowed claim(s) is/are 1,4-8,10-15,19-27,31-35 and 37-40.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

/K. T./  
Examiner, Art Unit 1795

**DETAILED ACTION**

1. The amendment filed June 8, 2009 has been entered. Claims 1, 4-8, 10-15, 19-27, 31-35, and 37-40 are pending. Claims 1, 10, 14, 25, and 27 are amended. Claims are 2, 3, 9, 16, 17, 18, 24, 28, 29, 30, and 36 are cancelled. Claims 38, 39, and 40 have been added by examiner's amendment.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on July 8, 2008.

***Examiner's Amendment***

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Robert E. Bushnell on October 8, 2009.

**IN THE CLAIMS:**

**Claim 1:**

Please amend claim 1 as follows:

A secondary battery, comprising:

an electrode unit having a first electrode plate, a second electrode plate, a separator interposed therebetween, and first and second electrode tabs respectively extending from the first and second electrode plates;

a can adapted to accommodate the electrode unit and an electrolytic solution;  
and

a cap plate adapted to seal the can ~~and having~~, said cap plate being perforated by an electrolytic solution inlet[[,]] extending from a smaller opening a first area of a first opening of the electrolytic solution inlet on a first major surface of the cap plate facing an exterior of the secondary battery being different from and through the cap plate to a second area of a second larger opening of the electrolytic solution inlet on a second major surface of the cap plate facing the electrode unit, the first surface of the cap plate and the second surface of the cap plate on opposite sides of the cap plate to and being spaced apart from the electrode unit, with the first surface facing to an exterior of the secondary battery and the second surface facing to the electrode unit, and with the first area being smaller than the second area wherein the electrolytic solution inlet has a stepped portion recessed to a predetermined depth in the neighborhood of the electrolytic solution inlet.

**Claim 10:**

Please amend claim 10 to depend from new claim 38.

**Claim 14:**

Please amend claim 14 as follows:

A secondary battery, comprising:

an electrode unit having a first electrode plate, a second electrode plate, a separator interposed therebetween, and first and second electrode tabs respectively extending from the first and second electrode plates;

a can adapted to encase the electrode unit and an electrolytic solution; a cap plate adapted to seal the can;

a terminal pin electrically connected to the first electrode tab and physically connected to and electrically insulated from the cap plate;

an insulating plate provided on a second major surface of the cap plate and extending in a direction along which the cap plate extends and arranged to insulate the terminal pin from the cap plate; and

the second electrode tab being welded to the cap plate at a position, the terminal pin being disposed between an electrolytic solution inlet and the second electrode tab, ~~a first area of said cap plate being perforated by the electrolytic solution inlet having a~~ [[first]] smaller opening of the electrolytic solution inlet located on a first major surface of the cap plate facing an exterior of the secondary battery and through ~~being different from a second area of a second larger opening of an injection hole of the electrolytic solution inlet on the second major surface of the cap plate, the first surface of the cap plate and the second surface of the cap plate opposite to and spaced apart from the electrode unit, the first surface facing to an exterior of the secondary battery and the second surface facing to the electrode unit, and with the first area being smaller than the second area,~~

~~wherein a stepped portion recessed to a predetermined depth is arranged in the neighborhood of the injection hole.~~

**Claim 25:**

Please amend claim 25 to depend from new claim 39.

**Claim 27:**

Please amend claim 27 as follows:

A secondary battery, comprising:

an electrode unit having a first electrode plate, a second electrode plate, a separator interposed therebetween, and first and second electrode tabs respectively extending from the first and second electrode plates;

a can adapted to encase the electrode unit and an electrolytic solution;

a cap plate adapted to seal the can and, said cap plate having an electrolytic solution inlet;

a terminal pin electrically connected to the first electrode tab and physically connected to and electrically insulated from the cap plate;

an insulating plate arranged on a second surface of the cap plate, said insulating plate extending in one direction of the cap plate and insulating the terminal pin from the cap plate; and

the electrolytic solution inlet being arranged to overlap the insulating plate, and an injection hole disposed in correspondence with the electrolytic solution inlet, the electrolytic solution inlet being positioned in the insulating plate, ~~a first area of said insulating plate being perforated by the electrolytic solution inlet extending between a~~



[[first]] larger opening of the electrolytic solution inlet located on a first major surface of the insulating plate facing the electrode unit of the secondary battery and through to a smaller ~~being different from a second area of a second~~ opening of the injection hole on a second major surface of the cap plate, ~~the first surface of the insulating plate and the second surface of the cap plate opposite to and~~ spaced apart from the electrode unit, ~~the second surface of the cap plate and~~ facing [[to]] an exterior of the secondary battery and the first surface of the insulating plate facing to the electrode unit, and the first area being bigger than the second are,

wherein a stepped portion recessed to a predetermined depth is arranged in the neighborhood of the injection hole.

**Claim 37:**

Please amend claim 37 to depend from new claim 40.

**Claim 38:**

Please add new claim 38 as follows:

The secondary battery of claim 1, wherein the electrolytic solution inlet has a stepped portion recessed to a predetermined depth in the neighborhood of the electrolytic solution inlet.

**Claim 39:**

Please add new claim 39 as follows:

The secondary battery of claim 15, wherein a stepped portion recessed to a predetermined depth is arranged in the neighborhood of the injection hole.

**Claim 40:**

Please add new claim 40 as follows:

The secondary battery of claim 27, wherein a stepped portion recessed to a predetermined depth is arranged in the neighborhood of the injection hole.

***Claim Rejections - 35 USC § 103***

4. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation) on claims 1, 8-9 and 11 are withdrawn, because independent claim 1 has been amended, and claim 9 has been cancelled.
5. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation) and Uba (US 4,421,832) on claims 4-6 are withdrawn, because independent claim 1 has been amended.
6. The claim rejection under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Uba (US 4,421,832), and Planchat (US 4,735,630) on claim 7 is withdrawn, because independent claim 1 has been amended.

7. The claim rejection under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Uba (US 4,421,832), Planchat (US 4,735,630), and Watari (JP 2001-313022, refer to IPDL JPO machine translation for citation) on claim 10 is withdrawn, because independent claim 1 has been amended.

8. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Uba (US 4,421,832), Planchat (US 4,735,630), Watari (JP 2001-313022, refer to IPDL JPO machine translation for citation), and Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information) on claims 12-13 are withdrawn, because independent claim 1 has been amended.

9. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation) and Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information) on claims 14, 23-24 and 26 are withdrawn, because independent claims 1 and 14 have been amended, and claim 24 has been cancelled.

10. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information), and Yamahira et al. (US 2002/0012829) on claims 15, 27 and 35-36 are withdrawn, because independent claims 14 and 27 have been amended, and claim 36 has been cancelled.

11. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information), Yamahira et al. (US 2002/0012829), and Uba (US 4,421,832) on claims 19-21 and 31-33 are withdrawn, because independent claims 14 and 27 have been amended.

12. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information), Yamahira et al. (US 2002/0012829), Uba (US 4,421,832), and

Planchat (US 4,735,630) on claims 22 and 34 are withdrawn, because independent claims 14 and 27 have been amended.

13. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information), Yamahira et al. (US 2002/0012829), Uba (US 4,421,832), Planchat (US 4,735,630), and Watari (JP 2001-313022, refer to IPDL JPO machine translation for citation) on claims 25 and 37 are withdrawn, because independent claims 14 and 27 have been amended.

14. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Zupancic (US 4,592,970) on claims 1, 8-9 and 11 are withdrawn, because independent claim 1 has been amended and claim 9 has been cancelled.

15. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Zupancic (US 4,592,970) and Uba (US 4,421,832) on claims 4-6 are withdrawn, because independent claim 1 has been amended.

16. The claim rejection under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Zupancic (US 4,592,970), Uba (US 4,421,832), and Planchat (US 4,735,630) on claim 7 is withdrawn, because independent claim 1 has been amended.

17. The claim rejection under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Zupancic (US 4,592,970), Uba (US 4,421,832), Planchat (US 4,735,630), and Watari (JP 2001-313022, refer to IPDL JPO machine translation for citation) on claim 10 is withdrawn, because independent claim 1 has been amended.

18. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation) in view of Zupancic (US 4,592,970), Uba (US 4,421,832), Planchat (US 4,735,630), Watari (JP 2001-313022, refer to IPDL JPO machine translation for citation), and Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information) on claims 12-13 are withdrawn, because independent claim 1 has been amended.

19. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130) in view of Zupancic (US 4,592,970) and Masumoto et al. (WO/2003/003485) on claims 14, 23-24 and 26 are withdrawn, because independent claim 14 has been amended and claim 24 has been cancelled.

20. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130) in view of Zupancic (US 4,592,970), Masumoto et al. (WO/2003/003485), and Yamahira et al. (US 2002/0012829) on claims 15, 27 and 35-36 are withdrawn, because independent claims 14 and 27 have been amended and claim 36 has been cancelled.

21. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130) in view of Zupancic (US 4,592,970), Masumoto et al. (WO/2003/003485), Yamahira et al. (US 2002/0012829), and Uba (US 4,421,832) on claims 19-21 and 31-33 are withdrawn, because independent claims 14 and 27 have been amended.

22. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130) in view of Zupancic (US 4,592,970), Masumoto et al. (WO/2003/003485), Yamahira et al. (US 2002/0012829), Uba (US 4,421,832), and Planchat (US 4,735,630) on claims 22 and 34 are withdrawn, because independent claims 14 and 27 have been amended.

23. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Osamu et al. (JP 2000-208130) in view of Zupancic (US 4,592,970), Masumoto et al. (WO/2003/003485), Yamahira et al. (US 2002/0012829), Uba (US 4,421,832), Planchat

(US 4,735,630), and Watari (JP 2001-313022) on claims 25 and 37 are withdrawn, because independent claims 14 and 27 have been amended.

***Reasons for Allowance***

24. Claims 1, 4-8, 10-15, 19-27, 31-35, and 37-40 are allowed.

The following is an examiner's statement of reasons for allowance:

The closest prior art of reference, Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation), Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Zupancic (US 4,592,970), Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information), Yamahira et al. (US 2002/0012829), Uba (US 4,421,832), Planchat (US 4,735,630), and Watari (JP 2001-313022, refer to IPDL JPO machine translation for citation), do not disclose or suggest the invention of independent claim 1, recited as "a secondary battery, comprising: an electrode unit having a first electrode plate, a second electrode plate, a separator interposed therebetween, and first and second electrode tabs respectively extending from the first and second electrode plates; a can adapted to accommodate the electrode unit and an electrolytic solution; and a cap plate adapted to seal the can, said cap plate being perforated by an electrolytic solution inlet extending from a smaller opening on a first major surface of the cap plate facing an exterior of the secondary battery and through the cap plate to a larger opening of the electrolytic solution inlet on a second major surface of the cap plate facing the electrode unit, on opposite sides of the cap plate."



The closest prior art of reference, Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation), Yoshimura et al. (JP 06-096793, refer to IPDL JPO machine translation for citation), Zupancic (US 4,592,970), Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information), Yamahira et al. (US 2002/0012829), Uba (US 4,421,832), and Planchat (US 4,735,630), do not disclose or suggest the invention of independent claim 14, recited as "a secondary battery, comprising: an electrode unit having a first electrode plate, a second electrode plate, a separator interposed therebetween, and first and second electrode tabs respectively extending from the first and second electrode plates; a can adapted to encase the electrode unit and an electrolytic solution; a cap plate adapted to seal the can; a terminal pin electrically connected to the first electrode tab and physically connected to and electrically insulated from the cap plate; an insulating plate provided on a second major surface of the cap plate and extending in a direction along which the cap plate extends and arranged to insulate the terminal pin from the cap plate; and the second electrode tab being welded to the cap plate at a position, the terminal pin being disposed between an electrolytic solution inlet and the second electrode tab, said cap plate being perforated by the electrolytic solution inlet having a smaller opening of the electrolytic solution inlet located on a first major surface of the cap plate facing an exterior of the secondary battery and through a larger opening of the electrolytic solution inlet on the second major surface of the cap plate."

The closest prior art of reference, Osamu et al. (JP 2000-208130, refer to IPDL JPO machine translation for citation), Yoshimura et al. (JP 06-096793, refer to IPDL

JPO machine translation for citation), Zupancic (US 4,592,970), Masumoto et al. (WO/2003/003485, refer to English equivalent US 2003/0180582 for cited information), Yamahira et al. (US 2002/0012829), Uba (US 4,421,832), and Planchat (US 4,735,630), do not disclose or suggest the invention of independent claim 27, recited as "a secondary battery, comprising: an electrode unit having a first electrode plate, a second electrode plate, a separator interposed therebetween, and first and second electrode tabs respectively extending from the first and second electrode plates; a can adapted to encase the electrode unit and an electrolytic solution; a cap plate adapted to seal the can and, said cap plate having an electrolytic solution inlet; a terminal pin electrically connected to the first electrode tab and physically connected to and electrically insulated from the cap plate; an insulating plate arranged on a second surface of the cap plate, said insulating plate extending in one direction of the cap plate and insulating the terminal pin from the cap plate; and the electrolytic solution inlet being arranged to overlap the insulating plate, and an injection hole disposed in correspondence with the electrolytic solution inlet, the electrolytic solution inlet being positioned in the insulating plate, said insulating plate being perforated by the electrolytic solution inlet extending between a larger opening of the electrolytic solution inlet located on a first major surface of the insulating plate facing the electrode unit of the secondary battery and through to a smaller opening of the injection hole on a second major surface of the cap plate spaced apart from the electrode unit and facing an exterior of the secondary battery."

Osamu et al. teaches a secondary battery comprising an electrode unit (2), a can (1), and a cap plate (6) sealing the can having an electrolytic solution inlet (14) (drawing

2, paragraph 2, 13, and 15), but does not disclose or suggest the electrolytic solution inlet being smaller on a first major surface of the cap plate facing an exterior of the battery, and larger on a second major surface of the cap plate facing the interior of the battery, nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Yoshimura et al. teaches a secondary battery comprising an electrode group (2, 3, 4) and an injection hole (6) (abstract; drawing 1), but does not disclose or suggest the electrolytic solution inlet being smaller on a first major surface of the cap plate facing an exterior of the battery, and larger on a second major surface of the cap plate facing the interior of the battery, nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Zupancic teaches a cover (40) with an orifice having a smaller opening facing the exterior and a larger opening facing the electrode (figures 1-3; column 9, lines 20-67), but does not disclose or suggest the secondary battery nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Masumoto et al. teaches a secondary battery (2) a sealing plate (23) and electrolyte injection hole (figures 2B and 11A; paragraphs 64 and 77), but does not

disclose or suggest the electrolytic solution inlet being smaller on a first major surface of the cap plate facing an exterior of the battery, and larger on a second major surface of the cap plate facing the interior of the battery, nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Yamahira et al. teaches a solution injection port (45) (Applicant's electrolytic solution inlet) arranged to overlap the gasket (43) (Applicant's insulating plate) (figure 12; paragraphs 57-59), but does not disclose or suggest the electrolytic solution inlet being smaller on a first major surface of the cap plate facing an exterior of the battery, and larger on a second major surface of the cap plate facing the interior of the battery, nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Uba teaches channels (36') that are linearly shaped and arranged radially in the neighborhood of the central vent opening (42') (Applicant's electrolytic solution inlet) (figures 4 and 6; column 3, lines 51-60), but does not disclose or suggest the electrolytic solution inlet being smaller on a first major surface of the cap plate facing an exterior of the battery, and larger on a second major surface of the cap plate facing the interior of the battery, nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap

plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Planchat teaches channels (31 and 34) used to disperse electrolyte from an electrolyte inlet orifice (30) (Applicant's electrolytic solution inlet) (figure 3; column 3, lines 28-39), but does not disclose or suggest the electrolytic solution inlet being smaller on a first major surface of the cap plate facing an exterior of the battery, and larger on a second major surface of the cap plate facing the interior of the battery, nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Watari teaches the use of a metal sealing part (41) (drawing 3; paragraphs 22, 25), but does not disclose or suggest the electrolytic solution inlet being smaller on a first major surface of the cap plate facing an exterior of the battery, and larger on a second major surface of the cap plate facing the interior of the battery, nor an insulating plate with electrolytic solution inlet with a larger opening on the first major surface of the insulating plate facing the electrode unit, while the cap plate has a smaller opening of the injection hole on a second major surface of the cap plate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Correspondence/Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine Turner whose telephone number is (571)270-5314. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571)272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine Turner/  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795